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Classes Begin. *Norm Reinertsen, vice president-Quality Operations for Aircraft Systems, addresses a recent GQ class. The division has stepped up its GQ training and now plans to train 3,000 more people by year's end.*

Aircraft Systems Begins Training 700 A Month In GQ

BETHPAGE, Long Island — On August 16, the Aircraft Systems Division launched an ambitious schedule of training classes in "The Quality Advantage," the introductory Grumman Quality (GQ) course.

"In Aircraft Systems, we will train 3,000 people by year's end," said Executive Vice President Ron Peterson at the beginning of the first class, which met August 16-17 in Building 28. "We have already trained all our officers and directors, and now we have to reach everybody else. This class marks the start of a massive effort."

There are now 43 quality action teams in the division, some of which have already put solutions into place. "GQ works," said Peterson. "We're behind it 100 percent."

Norm Reinertsen, vice president-Quality Operations, pointed out that many of the analysis and problem-solving techniques used in GQ have been proven in the manufacturing world. Now, people are being encouraged to look at the quality of all work processes, even paperwork.

"If we can improve, it's money in the bank," said Reinertsen. "That money will flow down to the bottom line. If we don't change it today, we may not have another opportunity.

"Most of us here own some Grumman stock," he added. "If we make this program succeed, the value of that stock will go up. It's up to you."

The group consisted of people from quality engineering, measurement standards, design assurance, and the quality laboratory. Grummanites Al Eusini and Ernie Berlucchi were the facilitators.

Data Systems, Singapore Firm Form Pacific Rim Joint Venture

Grumman Data Systems and Singapore Computer Systems (SCS) Private Limited have formed a joint venture company to market computer systems integration services in the Pacific Rim.

Pacific Rim countries stretch from Australia to Southeast Asia to Japan. The new company, SCS-Grumman Computer Systems Private Limited, will be headquartered in Singapore and will operate from present SCS and Grumman offices in the region. SCS owns 51 percent of the new company; Grumman, 49 percent.

SCS-Grumman will focus on computer-aided design and manufacturing (CAD/CAM), computer-integrated manufacturing (CIM), and supercomputing. The new firm is already working on its first contract: a CIM study.

"The Pacific Rim is potentially a big market for systems integrators," says Data Systems President Bob Myers. "All the major computer manufacturers — DEC, IBM, Hewlett Packard — are focused on the region, creating opportunities for firms that can integrate systems. We decided a joint venture would give us an edge in knowing how to do business in the region, and who the organizations are that will need our services."

Business in general is booming in the region, especially in Singapore. Singapore has been proclaimed by its Prime Minister, Lee Kuan Yew, to be "the brain center of Southeast Asia." It leads the region in the use of computers in business and science.

SCS is a systems integration firm much like Data Systems. It is a subsidiary of Sheng Li Holdings Group, a large conglomerate. It employs about 500 computer specialists.

Grumman has had several large projects in Singapore in recent years. It delivered four E-2C Hawkeyes, assisted Singapore in putting new engines into its fleet of A-4 Skyhawks, and had Singapore's help in Grumman's contract to refurbish A-4s for its neighbor, Malaysia. And as part of an industrial cooperation agreement with Singapore's government, Grumman built the Grumman International Nanyang Technical Institute CAD/CAM center (GINTIC).

"Grumman has an excellent reputation there as a result of these programs," says Myers. "And since Singapore is a small country, people in business, government, and education tend to know one another. Once it became known that we were interested in forming a joint venture, they suggested we work with SCS. It was almost like a brokered marriage."

Once SCS-Grumman finishes its CIM study, it intends to bid on prototype CIM projects for the other parts of the Sheng-Li Group, among them Singapore Aerospace and Singapore Technology Industrial Corporation.

"SCS also just obtained the nation's first NEC super-computer," says Myers. "That's one of the areas in which SCS will look to Grumman for expertise."

Grummanite Jim Boyd, formerly GINTIC's director, has been named general manager of SCS-Grumman. Two Grummanites are working there temporarily as consultants for the CIM study.

Much of the computer equipment used in these countries is identical or similar to U.S. makes. In fact, some American firms have computer factories in the region, including IBM, Hewlett Packard, and Apple.

"Grumman will use the smarts we've learned in the U.S.," says Myers. "But in this field, you have to stay on top of the rapidly changing technology and product offerings."

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Neutral Particle Beam Accelerator Passes First Tests In Space

The first test in space of a neutral particle beam accelerator was successfully completed on Thursday, July 13. The Grumman Space Systems-built radio frequency quadrupole (RFQ) accelerator was put through its paces during an approximately nine minute suborbital rocket flight. The rocket lifted off from the White Sands, New Mexico, Missile Range at 2:30 a.m.

The Beam Experiment Aboard Rocket (BEAR) mission was carried out by the Directed Energy Office of the Strategic Defense Initiative Organization. It was designed to prove technology needed to operate a neutral particle beam in space. Neutral particle beams could be used in a space-based strategic defense system to pick out decoys from actual warheads of nuclear missiles. Nuclear particle beams could also be used to destroy missile boosters and warheads.

Particle beam accelerators have been operated on the ground under controlled laboratory conditions for several decades. Grumman's RFQ is the first space-qualified accelerator.

Grumman Space Systems delivered the RFQ to Los Alamos in February, 1988. It has been undergoing ground tests since then. Frank Halfen, Grumman BEAR Program Manager, says "the RFQ worked flawlessly throughout the test program and during the flight."

The RFQ accelerator designed by John Rathke of Energy Systems is a finely machined, specially built unit about a meter long. It focuses and accelerates a stream of hydrogen atoms. Grumman engineers developed an electroforming process so the RFQ could be a single unit, rather than a number of pieces bolted together. Their process eliminated the potential problem of RFQ components being shaken out of alignment by the rocket launch and space flight.

It will take six to nine months to see how well the RFQ performed. That's how long the Directed Energy office estimates it will take to analyze the data from the space test.

Grumman also designed and produced the shroud, a 24-foot long, 44-inch diameter set of skins that enclosed the BEAR payload.

"The BEAR flight paves the way for Pegasus," says Tony Favale, Space Systems deputy director, Energy Systems. That's the next space mission planned for the neutral particle beam. It's an orbital experiment. Grumman will bid on a contract for that program this year.

Grumman Space Systems is also under contract to Los Alamos to help develop the ground test accelerator, an accelerator that will be used to develop space-based particle beam systems, and under contract to the U.S. Army Strategic Defense Command to design, build and operate the Continuous Wave Deuterium Demonstrator Accelerator. The deuterium accelerator is the next generation technology for neutral particle beams.

According to Favale, Space Systems has about 100 engineers, scientists and technicians working on the neutral particle beam efforts. Thirty-one of them are at Los Alamos.

Eight Receive New Assignments

The following Grummanites recently received new assignments:

Aircraft Systems

Bethpage Operations: John E. Jund, production manager, E-2C Program; Alvin Beyerlein, production manager, F-14 Program.

Calverton Operations: J. T. Gwynne, airport manager, Production Operations.

Integrated Logistics Support: William J. Kelly, program manager, EA-6B Program; Walter Johnston Jr., engineering specialist, RF/ Controls, Command, Communication and Control Avionics; Edward J. Moran, engineering specialist, RF/ Controls, Engineering.

Manufacturing Technology: Mark DiFilippo, director, Manufacturing Systems.

Corporate Services

Administrative Services: Charles P. Renz, manager, Reproduction and Distribution Services.

Budget Battle Milestones — Nine Down, 11 To Go

The following is a tentative list of the 20 legislative milestones the fiscal 1990 defense budget must pass before the final decision on F-14D funding will be made.

Finished

1. June — House Armed Services Procurement Subcommittee voted to uphold the Cheney defense budget.
2. June — House Armed Services Full Committee voted to include funding for 12 new F-14D's and four EA-6B's in fiscal 1990; advanced funding for 12 F-14D's in fiscal 1991; and advanced funding for 12 remanufactured F-14D's in fiscal 1991.
3. July 11— Senate Armed Services' Conventional Forces Subcommittee met behind closed doors and didn't include any funding for new F-14D's.
4. July 13 — Senate Armed Services Committee defeated two amendments to fund new F-14D production in its version of the defense authorization bill.
5. July 27 — House of Representatives approved its version of the defense authorization bill. Its version included funding for 12 new F-14D's in 1990, as well as funds for advanced procurement of another 12 new F-14D's and 12 remanufactured F-14D's in 1991. The bill also contains funding for four EA-6B's.
6. July — House Appropriations Defense Subcommittee did markups behind closed doors (no official report issued).
5. August 1 — House Appropriations Full Committee approved its version of fiscal 1990 defense appropriations bill. Its version included funding for 24 F-14D's to be delivered over three years, so an orderly shutdown of the production line can be planned. Money was also appropriated so the F-14D remanufacturing line can begin in fiscal 1991. Twelve EA-6B's were also funded.
6. August 4 — House of Representatives approved its version of the defense appropriations bill. This version contained funding for 24 new F-14D's over several years and 12 EA-6B's.
7. July 10-11 — Senate Armed Services' Conventional Forces Subcommittee met behind closed doors (no new F-14D's funded).
8. July 12-14 — Senate Armed Services Full Committee approved its version of the defense authorization bill; no funding for new F-14D's.
9. August 1 — The entire Senate voted down an amendment to its 1990 defense authorization bill that would have provided funds to continue production of new F-14D's.

To Come

10. September — Senate Appropriations Defense Subcommittee
11. September — Senate Appropriations Full Committee
12. September — Senate floor action – Appropriations vote
13. September — Authorization Conference
14. September — Appropriations defense subcommittee conference
15. September — House floor action – Authorization conference
16. September-October — House floor action – Appropriations conference
17. September-October — Senate floor action – Authorization conference
18. September-October — Senate floor action – Appropriations conference
19. September-October — Presidential action – Authorization Bill
20. September-October — Presidential action – Appropriations Bill

Obituaries

Randol Barrick of Capital Lease Management, Bethpage, Corporate Services Division, died July 31 at the age of 60. He had been with the company since 1963 and resided at 306 Coolidge Ave., Mineola, N.Y.

Anthony Collura Jr. of Management/Staff, Bethpage, Aircraft Systems Division, died Aug. 10 at the age of 54. He had been with the company since 1955 and resided at 160 S. Gate Circle, Massapequa Park, N.Y.

I Heard It At The Pin Meeting

O'Brien Answers Questions On July Fourth Break, F-14D Budget Battle, Systems Group, Advertising

On Friday, August 4, Grumman Chairman John O'Brien met with Grummanites who recently celebrated service anniversaries with the company.

Before fielding questions from the audience, O'Brien discussed the ongoing defense budget battle to restore funding for new F-14D's in fiscal 1990. "As you know, we lost in the Senate," said O'Brien. "We didn't expect them to add the F-14s back in the budget. I believe that when it goes to conference after Labor Day, the House will prevail and the F-14s will be put back in. I also think EA-6B's will go back in. As a matter of fact, the Senate is stronger for EA-6B's than they are for F-14's because the Navy inventory is shorter of Prowlers than Tomcats.

"Basically, we have a lot of support in three committees: the House Armed Services, the House Appropriations, and the Senate Appropriations. The Senate Appropriations Committee probably will not mark up until after the Armed Services Committees' conference which will take place no earlier than September 12," continued O'Brien. "So we've got to sit on pins and needles for another six weeks at least. My guess is that we really won't know anything until early October. But I'm more optimistic than I was several weeks ago that we will keep the F-14s in the budget."

O'Brien commented on the support Grumman has received. "Every Wednesday morning at nine we meet with our own representatives and senators," said O'Brien. "They've really pitched in and helped. They have done everything we have asked them to do and more."

Before handing out service anniversary pins to the attendees, O'Brien answered the following questions:

Are there any plans to change our advertising campaign to stress that we want to be both aircraft builders and systems integrators?

O'Brien: Well, it was our attempt — and maybe not a very good one — in our advertising campaign to show that we were doing both. We've changed our advertising to try and keep it better balanced. We also have a much broader market to capture in our advertisements — such as the investment community.

Contrary to what the airplane builders in the company believe, we're not running away from the airplane business because we're expanding into other areas. But how many new airframes are going to come out for competitive design in the next decade?

Reply: *There's only one that I'm aware of.*

O'Brien: Right, the Advanced Tactical Support Aircraft (ATSA). So we can't survive just being in the airframe design business. Our overall plan is to keep our airframe business about the size it is and to build on that and expand into other areas. And we've been moderately successful at it. The recent challenges from the Defense Department are the only lack of success we've had.

You say that you want to keep the F-14D and do it your way. What exactly is your way?

O'Brien: The Secretary of Defense wants F-14D's, but he wants them remanufactured. He doesn't want any new ones, because he says they're too expensive at one a month. Of course, I think the airplane he wants to replace it with will cost twice as much.

Remember that remanufacturing A's into D's doesn't allow us to keep the kind of design teams we need around here to compete for a Tomcat-21, if the NATF falls out of the budget.

So my way is: build F-14D's for two more years until you find out whether the NATF is going to work or not. That keeps us in production until 1993. By that time, they will have discovered that the NATF is 30,000 lbs. too heavy for an aircraft carrier and too big for the carrier deck. And they won't buy it and we'll be able to sell the Tomcat-21.

Basically, they are canceling the production of an airplane that's just been created; the F-14D hasn't even been introduced into the fleet yet.

By the way, the whole argument is over $365 million in a $300 billion budget.

You recently announced the formation of a multi-divisional Systems Group. What are your near- and long-term plans for the development and expansion of that group?

O'Brien: Well, it's fairly obvious that the Systems Group holds very significant potential. If we're successful with the Joint STARS program at Melbourne Systems, it's worth over $10 billion over the next decade, as is BSTS in Space Systems. That's if we beat Lockheed in the competition and I think we are getting closer to that every day.

The Systems Group also has the $400-million Electronics Systems Division. It needs to go further and faster than it has been going in its product development and in its marketing of IFTE and other systems.

I formed the group to get more concentrated efforts on winning those vehicles and systems in the marketplace, because I was not satisfied that as independent divisions they were going to accomplish that.

If you're in any of those divisions, you've probably already seen some changes in attitudes and directions.

Where would the remanufacture of F-14s take place?

O'Brien: I really don't know because I don't know what the depth of the remanufacturing is. It's highly probable some of it will be done on Long Island, but we're in a very competitive world in rework and a lot of it doesn't fit on Long Island. That's the other part

(Continued on page 4)

Tomcat Check. *Lt. Cdr. Eric Neidliger (L on plane) and Lt. Cdr. Phil Nelson check out the F-14D full scale development plane before a recent test flight for the initial operational test program. Four crews from Navy flight test squadron VX-4 were at Calverton for the three week flight test program. They flew 39 times in a pair of F-14D full scale development planes. (Photo by Gerry Costello)*

I Heard It At The Pin Meeting

(Continued from page 3)
of the battle. And that's nothing new to all of us.

I've been a facilitator in quality circles. I think that you're on the right track as far as Grumman Quality goes. A lot of people with good ideas have difficulty getting their ideas accepted by management.

O'Brien: I know your frustration. People don't react. Supervisors don't react. But we're squeezing from the top down to get them to react. Grumman Quality is the only way we can do it. You can't — I can't — change a culture by standing on the blue ball and hollering. But you can change the culture through the GQ process. As I've said publicly, there's nothing I won't change in this company if it's going to make it a better company.

Two rumors were circulating this week. One is that we'll be forced to buy or use vacation time during the Fourth of July week next year.

O'Brien: That's not a rumor, it's a fact. There has been a notice released about that.

Reply: *I was afraid of that. The second rumor is that we're not going to be able to purchase a week's vacation due to the tremendous amount of paperwork involved.*

O'Brien: That's not true. You can purchase vacation days if you wish in 1990. We recently announced the 1990 holiday schedule, so people can plan their vacations ahead of time with the least amount of inconvenience.

Next year, the Fourth of July falls on a Wednesday, and judging from this year's attendance record, a lot of people take off the entire week. About one out of three people weren't at work that week last month. If we stay open, the lights would be on, the air conditioning would be running and we'd spend millions of dollars.

I heard that there was an effort by Grumman and several other corporations to start a day care center. What is the status?

Bob Bradshaw, Grumman vice president and secretary: We have been laboring about both child care and elderly dependent care for quite a while. Grumman and several other Long Island companies have formed a coalition to study and resolve day care issues. One thing is certain: Grumman is not getting into the day care business, yet we do recognize the need. One thing that we have found is that Grummanites and other Long Islanders are much more comfortable with private operations run right in their own neighborhoods with people they know and trust. We're looking into insurance issues, and at ways that would make it easier for people to be certified to run good day care facilities in their neighborhoods. I'm sorry that we don't have any quick answers to this issue because it's an important one, but I assure you that we are making progress.

What is Grumman's future in space?

O'Brien: We're in pretty good shape in the space business which I see as our next major frontier. BSTS is part of the Strategic Defense Initiative (SDI) but it will get through the SDI battle in Congress. The BSTS is the largest space system being bought other than the space station. We're competing head to head with Lockheed. We may be an inch ahead of them now. We were a foot behind them six months ago. But we're gaining because we have a new sensor. If we're successful at developing and building that sensor, it will have many other applications in space and perhaps in airframes. So it holds great potential.

We also manage the space station for NASA, so we have our foot in the door there. We are also building some parts of the space station and we're involved in the political battle to support the space station.

What about our future as systems integrators?

O'Brien: Well, Joint STARS is the world's largest software integration job and we're doing a super job on it, according to the Air Force. BSTS is a monstrous integration job that's ahead of us. Tomcat-21 will be a systems integration job as will the soon-to-be competed ATSA. So I see nothing ahead of us except systems integration work.

I've been here 15 years and I've noticed that over the years, Grumman people are not working as a team. We work against each other, even with divisionalization. Everybody has his own way of doing business and there's no coordination. I feel we should improve communications and have people work together — that's where your savings are going to be in the future.

O'Brien: Well, to a large extent that what Grumman Quality is all about. Nobody put the walls up in the divisions but the people in the divisions themselves.

Reply: *You can only fix so much and everybody's doing their own thing.*

O'Brien: But you have to help me fix it. I can't be in every spot in this company, despite the fact that you might like me to be there. I talk to the division presidents and we are changing some of the structures. Grumman Quality is directed at making those changes. But I can't do it all myself. You've got to help. If you see a road jam, go fix it. Don't walk around it.

Master Craftsmanship Sweetens The Pot

Incentive programs should be like apple pies: the more you did to prepare it, the bigger the piece for you.

For participants in this year's Master Craftsmanship Program, that's the way it will be. Grummanites in operations centers in Aircraft Systems' manufacturing areas could be able to share up to 50 percent of what they save the company by reducing rework. Until now, rework-cutting teams in successful operations centers were limited to a 25 percent share of the savings.

"It's a form of 'gain-sharing'," says Norm Reinertsen, vice president-Quality Operations. "It's the company's way to recognize and reward that effort." This year, Bethpage, Parts Fabrication, Stuart, Calverton and Milledgeville operations are participating in Master Craftsmanship. Under the Master Craftsmanship program, the division, each operations center and each team are given calendar year and monthly rework goals. These goals are based on the number of hours that were spent the previous year to fix parts or assemblies that were built incorrectly.

All three major players — the division, the operations center and the team — must beat their goals to share in the savings. How much money each person gets depends on how well the center did. Last year, over 3,400 Grummanites in Bethpage Operations and Parts Fabrication got checks for up to $225 each from the Master Craftsmanship program. This year's checks could be double that.

The monthly award system was also changed. Team members will still earn prizes — merchandise from Employee Services or from a special catalog — when they meet monthly goals. In addition, every time they qualify for these monthly prizes, their team will get a chance at a special incentive award. The special incentive is an annual prize drawing. There are only three awards, but the top prize is $5,000, second is $3,000 and third is $2,000. The operations center must meet its annual rework goal for monthly award winners to get into the drawing. The division does not. Members of the winning teams split the prizes; teams average about 25 people.

"We are already looking for ways to make the 1990 Master Craftsmanship program even better," Reinertsen says.

Why the improvements? Part of the reason is because the people in manufacturing have done such a good job in the past. But also because the bigger rewards will help offset the fact that it's getting tougher to improve the manufacturing operation, says Reinertsen.

Back in 1986, the Master Craftsmanship program's goal was for Aircraft Systems to reduce rework by 40 percent in five years. According to Reinertsen, the division has already reached 36 percent in three years. "We've achieved historic lows in rework for the corporation," he says. "So the targets for 1989 are not easily reached. Making those goals is really a sign of excellent performance.

"We have too small a production volume to fine tune the production processes," Reinertsen adds. "Our greatest opportunity for improvement is in the individuals who take care to do the job right or, when they can't do certain tasks, stop and ask for help."

How Do They 'Divvy Up' The Pie?

Operations center beats goal by:	*Eligible Grummanites share:*
Up to 10%	25% of center's savings
11 - 20%	33% of center's savings
21% or more	50% of center's savings

GQ Solution Makes Mod Kits Easier To Install

To assemble a bike or piece of furniture yourself, you must understand the instructions. Aircraft modification kits are much more complicated, but the drawings and instructions must be just as easy to follow.

A Grumman Quality (GQ) team in Aircraft Systems recently came up with a way to improve such drawings, as a key part of a project to increase customer satisfaction among kit buyers. This subject was tackled after the Air Force said a Grumman-developed kit was too difficult for its people to properly install. The GQ team developed a list of guidelines to be followed in the creation of drawings.

"All modification programs have three things in common: a design or set of drawings, parts made to that design, and installation instructions," says Ed Merriam, director of Grumman's Configuration Data Management department. "Some projects may require all installation instructions to be included right on the drawings."

This GQ group was one of the few cross-divisional teams formed at Grumman so far: besides the Aircraft Systems people, one person from Electronics Systems was on the team. That's because most Grumman modification kits involve avionic equipment, and Electronics Systems Division builds the connecting harness assemblies.

"In addition to the team members, we got a lot of input from ongoing programs," says Merriam, "including A-10, Peace Pearl, F-111, Pacer Strike, and the Navy modification kit programs."

Simply Put. *This GQ team in Aircraft Systems came up with a procedure to simplify kit drawings. Shown are (L to R) Manning Dandridge, Jim Erickson, Ted Zach, Ed Merriam, Bob Maple, and Frank Barnes. (Photo by Ken Johnson)*

The team determined that many of the kit problems occurred because parts were designed and manufactured the same way as hardware for production aircraft: detail parts aren't always made *exactly* the same as their engineering drawings. There is an intermediate step between engineering and production — methods.

In methods, something is often changed to make production easier. For instance, a part has pilot holes instead of normal rivet holes. An operations sheet will reflect this; the drawing, not necessarily.

"But the customer wants the part to be exactly like the drawing," says Merriam. "Methods and engineering should work together from early in the project as part of a task team, and the drawing should reflect the input from methods. The kit has to be like something you get from Heathkit or Sears: parts are easy to identify and put together."

On Navy programs, the installation work is often done by Grummanites. If not, Grumman field representatives are usually available for assistance when problems arise. On Air Force programs, contractor involvement normally ends upon delivery.

"The customer has young service people install modification kits," says Merriam. "Many of them haven't yet acquired a great deal of experience or a variety of skills. Our production force knows our practices and our products."

Merriam adds that on foreign military sale programs, the ultimate customer may not have the same skills or speak English fluently. So, making instructions easy to comprehend becomes even more important.

Other important points of the kit-drawing procedure are:

• Materials, hardware, and tools needed to do the job should be discussed with the customer, and if difficult to obtain at the customer's location, included in the kit and the price.

• Drawings must show how parts appear in the kit, not how they look after installation.

• Drawings must avoid reference to company specifications, which are meaningless to people unfamiliar with Grumman products.

"The eight team members started out with eight different views on the cause of the problem, and the remedy," says Jim Erickson, the group's facilitator. "We slowly came to look at it as the customer does — and that was the key to developing the solution. It was a big problem, but the team members were willing to do whatever it took to solve it."

This initial solution only addresses the kit drawings; the team is also working on improving kit configuration and inspection, manufacturing, statements of work, and field installation.

Kit making is a growing specialty. Fewer aircraft are being produced for the Defense Department every year, so there will be a growing need for modification kits. In addition to defense programs, there is potential business among foreign and commercial customers.

A spinoff GQ team has been formed to put the new procedure in place early on the Pacer Strike program, for which Grumman has submitted its proposal. Pacer Strike is similar to the current F-111 Avionics Modernization Program; the Air Force is expected to announce the winning contractor on August 31.

"The more you do to satisfy your customers, the more they will look to you for future business," says Merriam.

On The Move

Electronics Systems Division's executive and administration offices are being moved from Headquarters in Bethpage to Great River this weekend. As of Monday, August 28, the new switchboard number is (516) 224-3334.

CPR Classes Begin Sept. 11

Grumman Medical will sponsor its three-hour cardio-pulmonary resuscitation (CPR) classes on Mondays starting September 11, from 4:30 to 7:30 p.m.

Participants will receive American Heart Association certificates upon successul completion of the course. A $15 check should be made payable to the American Heart Association.

Enrollment is limited. Fill in the form below and mail to Ada Colter, C08-GHQ, 575-3723.

Name.....

Badge No.....Phone No.....

Mail stop.....

I'd like to attend the following class:

[ ] Bethpage, Monday, September 11
[ ] Bethpage, Monday, September 18
[ ] Melville, Monday, September 25
[ ] Woodbury, Monday, October 2
[ ] Great River, Monday, October 16
[ ] Calverton, Monday, October 23

Mail to: Ada Colter, C08-GHQ

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Like Artists, Parts Makers Now 'Sign' Their Work

A little "G" on a work order is like "sterling" on silver in the Parts Fabrication Center in Bethpage.

Under a new quality assurance program called the Manufacturing Verification System (MVS), the people who make sheet metal detail parts put their personal seals of approval on the documentation for every part they make.

All trained operators now have a stamp: a small "G" with "MVS" and their permanent numbers. Those stamps on work orders mean that each detail part went through all the right steps to get to operators' stations, that they did their operations properly and the part was ready for the next production step.

The first step for the MVS program involves sheet metal parts that go into Grumman's major military aircraft programs. The plans call for MVS eventually to be incorporated into the entire Parts Fabrication Center, where some two million parts were produced in 1988. MVS may be used in some assembly and test operations in the future.

"We're using the skills of a very fine work force to help cut costs and improve productivity," says Norm Reinertsen, Aircraft Systems vice president-Quality Operations.

The quality of the thousands of little pieces that go into Grumman planes won't be compromised, Reinertsen says. "We're taking advantage of an enormous investment in automated production and a skilled and trained work force. With MVS we know that if we give skilled workers the proper training, the proper tools and the proper paperwork, they can be accountable for their own actions and should produce a quality product."

"This is an international concept," says Vince Ciampa, director of the Parts Fabrication Center. "In the U.S., Ford, G.M. and Chrysler all have programs similar to this one." The Navy has been involved in the planning of this program and supports it. "NAVPRO was glad to see our desire to improve quality."

Artists At Work. *Stretch press operators Frank Ambrosio (L) and Stan Januszkiewicz believe MVS just makes official the way they have always approached their jobs. Says Ambrosio, "We're just striving for something better." (Photos by Rich Breunig)*

Because so much of the detail parts manufacturing operation is computer controlled, the processes — heat treat, stretch press, drilling, punching operations, etc. — are proven, precise and repeatable. The operators monitor those processes. If they're satisfied all the equipment is working properly, the parts that come out should be good ones.

But the previous quality inspection system called for all detail parts to be touched by Quality Control inspectors. Slightly more than half were inspected with a full battery of tests; the rest with a modified group of inspections.

In the simple but critical process of drilling holes in the assembly area, Grummanites drill the holes perfectly 99.6 to 99.7 percent of the time. With proven results like that, Reinertsen says there should be no reason to check every hole drilled in every assembly. Computer chip manufacturers, he points out, produce thousands of chips a day. They don't inspect every chip. They tightly control the production process and randomly check a few chips.

"It's like apples," explains Reinertsen. "If we get the process of buying and shipping apples down pat, the apples should arrive in good shape. Why inspect all the apples?"

The MVS program will change tradition. Quality Control will okay new processes and inspect the first parts. After that, the production machine operators will shoulder the responsibility: they will make sure the processes are controlled. "If we build accurate, precise controls into the process, the parts will be right," Reinertsen says.

Eventually under MVS, only 25 percent of all parts need be inspected by Quality Control people; the other three-quarters of all parts will not routinely be pulled out of the production process for inspection.

"If you can save three to five days of flow time, that's a 10 percent savings," Reinertsen says. "There are still lots of controls. In fact, we are really taking advantage of those controls and being careful not to duplicate unnecessary operations."

MVS has changed the way the machine operators approach their work, according to Ken Payne, director of Operations for the Parts Fabrication Center. "By having inspectors, there was always that 'comfort zone' that somebody else was checking the work.

"Now, people are more concerned with the output. They want to know if the tools are right. They want to know what our goals are," Payne says. "What was required before is still required now. You can't inspect quality into a part. The people who make the parts and the people who make the tools build quality into these parts."

Frank Ambrosio, a stretch press operator, understands that. "I'm the inspector. When a part leaves me, I'm satisfied." But this is nothing new, he says. "Most of the people I work with agree that we do this anyway. In some ways the new program makes people more cautious. But we've always made quality products, we're just striving for something better."

The MVS program also was a vote of confidence, Ambrosio believes. "When management started this program it told us they are as concerned about quality as we are."

Vinny D'Angelo, director of Quality Operations in Parts Fabrication, agrees. "This program says 'We know you are doing a good job. We'll give you the responsibility for the work you do,'" he says.

D'Angelo says, "We're going to get away from the stuff we know is good and concentrate our efforts on the parts that have caused us problems in the past and fix those." In fact, the new MVS work orders clearly state when a part had quality problems and what they were.

The pilot program went into operation on June 26. Reinertsen says, "In four to six months we'll see if we're on target."

He'll Be Checking. *Joe Fiore is one of two inspectors monitoring processes in the heat treat area in Building 3. Fiore makes sure the times and temperatures are just right.*

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